

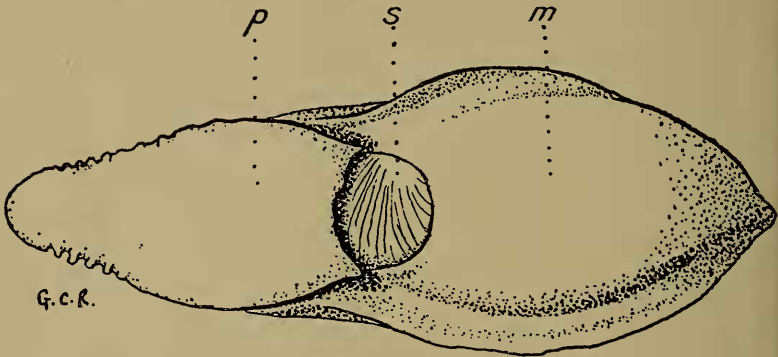
ON THE EXTERNAL CHARACTERS OF *SINUM PLANULATUM*  
(RÉCL.).

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Read 13th April, 1923.

IN the autumn of last year I received from Dr. J. D. F. Gilchrist a complete specimen of *Sinum planulatum* (Récl.), obtained during the Marine Biological Survey made by the Union Government of South Africa in 1921. It was caught in 59 fathoms in Lat. 32° 11' S., Long. 18° 9' E., and had been well preserved in formalin, so that the colour was still fairly vivid. As the description of the external parts of representatives of this interesting genus is still deficient the following notes may be of service.



*Sinum planulatum* (Récl.), slightly enlarged. *p*, propodium; *s*, shell; *m*, metapodium.

The modification of the foot in the Naticidæ is a well-known phenomenon, and has been repeatedly figured in textbooks. A general account of *Sinum planulatum* has been given by Bergh<sup>1</sup>; but no detailed description of the external parts has been as yet published in the case of this species, which probably shows the maximum development of the propodium and metapodium seen in this family.

The specimen is somewhat bent on itself and cannot easily be flattened out. It measures about 87 mm. in length; a figure which is twice as large as that given for Bergh's specimen. The only other complete example in the British Museum measures 85 mm. To this total length the propodium and metapodium each contribute the same, viz. about 40 mm. The whole animal is long, narrow, and flat, and only a small portion of the shell is seen projecting between the

<sup>1</sup> *Trans. S. African Phil. Soc.*, xvii, 1908, p. 108.

posterior expansion of the propodium and the anterior portion of the metapodium. The colour is a delicate brownish-pink uniformly distributed on the upper and lower surface. At its widest the propodium measures 25 mm. in width, the foot projecting slightly beyond it. The groove separating propodium and foot-sole begins some 10 mm. from the anterior end on the right-hand side, but is much nearer to the anterior extremity on the other, an asymmetrical arrangement which may be devoid of significance. The footsole and propodium are ovoid in plan, with the posterior end emarginate over the shell, in which area it covers the head and shell for a distance of about 6 mm. The posterior pedal area is wider than the anterior. The metapodium is not actually separated by a groove from the sole, but the propodial groove is continued backwards as a ledge about 4-5 mm. wide on each side, that on the left reaching the posterior extremity, that on the right ceasing about 10 mm. from the extremity. The anterior edge of the metapodium is hollowed out, and between this and the similarly emarginate posterior edge of the propodium some 12 mm. of the surface of the shell are revealed. The metapodium covers about 10 mm. of shell and the apex of the latter lies about 2 mm. inside the metapodial border. The metapodial area (inclusive of the sole) measures 34 mm. in width. The posterior extremity is pointed. In its general appearance the animal is thus elongate and leaf-shaped. The maximum height is 14 mm. or only one-sixth of the total length. The whole of the external surface is undifferentiated, and very little difference in the epithelium of the plantar and dorsal surfaces of the foot is observable.

When the shell is removed and the propodium cut back so as to allow an inspection of the head it is seen that the propodium is banked up against the head with an overhanging end. The head is supplied with a flat, thin, semicircular cephalic shield from which two slender tentacles originate. Contrary to Bergh's statement, a small, rather degenerate, operculum measuring about 5.5 mm. was found in this specimen.

There is a marked resemblance in function between the propodium in *Sinum* and other Naticoids and the cephalic shield of certain Bullomorpha. It would be of great interest to ascertain whether the innervation of the two structures which are of different origin, one being pedal, the other cephalic, is likewise different in origin, as one would *a priori* assume, or whether, subserving the same function, they are innervated from the same centres.

The remarkable development of the foot in this genus will be best illustrated by the statement that the viscera, shell, mantle, and head only occupy one-seventh of the total bulk of the animal, the remaining six-sevenths being represented by the enormous muscular expansion of the foot.

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